

Environmental Sustainability For A Sustainable Future And Role Of Education (In Climate Change Perspectives)

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ABSTRACT

One serious problem that threatens the continuation of life is climate change. Climate change is the main cause of the sixth major extinction event in history. Climate change resulting from the burning of fossil fuels poses an existential threat to life as we know it. In addition to promoting awareness, facilitating informed decision-making and creating changes in attitudes and behaviour, education broadens young people's knowledge. For the world to effectively combat climate change, education is essential. Increasing knowledge about climate change mitigation through climate change education (CCE) is one of the most important strategies. Climate change education is important for most students to acquire the knowledge, critical thinking skills, scientific understanding, and ethical frameworks needed to prevent, adapt, and reverse climate change. This paper explores the integral role of education in promoting environmental sustainability within the context of climate change. It highlights how education raises awareness, promotes sustainable practices, encourages innovation, fosters critical thinking, and supports policy and advocacy.

Keywords- Sustainability, Climate Change, Sustainable Future, Environment, Education

Introduction

The exploitation of vast amounts of seemingly unlimited supplies of natural resources is necessary to satisfy the modern world's insatiable demand for goods and services. The world's ecosystems suffer from a range of problems as a result of the challenge placed on the Earth to supply the energy, raw material resources and waste management systems necessary for human production and consumption. The basic needs of human existence—housing, clothing, food, mobility, and other necessities—as well as the increasing "Western-style" consumption they require, have a substantial negative impact on the environment, especially as the world's population grows. In 2019, India was ranked seventh most affected by climate change, yet 65 percent of the Indian population had not heard of climate change. India's National Education Policy 2020 mentions climate change and environmental issues as part of its work to achieve the United Nations Sustainable Development Goals.

Understanding Environmental Sustainability

Environmental sustainability is a critical goal for ensuring the health and longevity of our planet. It involves managing resources in a way that meets present needs without compromising the ability of future generations to meet their own needs. Climate change, driven by human activities, is a significant threat to environmental sustainability. Addressing this threat requires a comprehensive approach, with education playing a pivotal role. Environmental sustainability focuses on three main pillars:

Ecological Integrity: Maintaining the health of ecosystems, ensuring biodiversity, and preventing pollution.

Economic Viability: Promoting green economies that value natural resources and operate sustainably.

Social Equity: Ensuring that all communities have access to the resources and opportunities needed to thrive.

What is Climate Change?

“Climate Change is a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.” (Oxford Dictionary).

Climate change is one of the numerous issues brought about by our industrial and economic advancement that has dominated news headlines in the past several years. Scientists, policymakers, and people all throughout the world are extremely concerned about the present warming trend in the Earth's atmosphere, which was sparked by the industrial revolution.

Climate change is characterized by long-term changes in temperature, precipitation patterns, and increased frequency of extreme weather events. The primary driver of climate change is the increase in greenhouse gas emissions from activities such as fossil fuel combustion, deforestation, and industrial processes. The impacts of climate change include rising sea levels, more intense and frequent natural disasters, and disruptions to food and watersupplies.

Climate Change and Education

Education is critical for achieving effective, sustained climate action. At the same time, climate change is adversely impacting education outcomes. As the largest financier of education and the largest multilateral funder of climate action in the developing world, the World Bank seeks to harness the power of education for climate change mitigation and adaptation.



What is the Relationship Between Education and Climate Change?

Education is the single strongest predictor of climate change awareness. Mainstreaming climate education will change climate thinking and behaviour – not only for students, but also for their parents, communities and governments. This will also help promote better preparedness and resilience to climate shocks across the population. At the same time, the climate crisis adversely affects access to education and learning. Extreme weather events, more frequent and severe as a result of climate change, threaten schooling, learning and well-being. These impacts are borne disproportionately by poorer students.



Investments in education can play a huge role in building climate resilience and advancing climate change mitigation and adaptation. Climate change education provides young people with greater awareness of climate risks and better access to tools and solutions to address these risks and manage associated shocks. Technical and vocational education and training can also accelerate green economic transformation by promoting green skills and innovation. Greening educational infrastructure can help mitigate the impact of heat, pollution and extreme weather on learning while helping to address climate change.

Since the outbreak of COVID-19, the pandemic and the emergency response to the crisis have captured the attention of people around the world. Climate change is one of the fundamental problems of sustainable development that has not yet been solved. While 2020 was one of the hottest years on record, 2021 offers us a unique opportunity to improve climate education and take sustainable action. Countries will come together to promote "ESD for 2030", a new global framework for education for sustainable development, during the UNESCO World Conference on Education for Sustainable Development in May 2021.

What is Climate Change Education (CCE)?

Climate change education helps people understand and address the impacts of the climate crisis, giving them the knowledge, skills, values and attitudes needed to act as agents of change. The international community recognizes the importance of education and training to address climate change. The UN Framework Convention on Climate Change, the Paris Agreement and the associated Action for Climate Enhancement (ACE) program call on governments to educate, empower and engage all stakeholders and major groups in climate change policies and actions.

Climate Change Education (CCE) is education that aims to address and develop effective responses to climate change. It helps students understand the causes and consequences of climate change, prepares them to live with the impacts of climate change, and enables students to take appropriate action to adopt a more sustainable lifestyle. Climate change and climate change education are global challenges that can be embedded in the curriculum to provide local learning and spread the word about how climate change can be mitigated. In that case, CCE is more than climate change literacy, but understanding ways to deal with the climate.

CCE helps policy makers understand the urgency and importance of putting in place mechanisms to combat climate change at the national and global scales. Communities learn how climate change will affect them, what they can do to protect themselves from the negative consequences, and how they can reduce their own carbon footprint. In particular, CCE helps increase the resilience of already vulnerable communities most likely to be adversely affected by climate change.

Preparing the Next Generations for Climate Change

What children learn today will shape tomorrow's world. Climate Change Education for Sustainable Development (CCESD), therefore, has a central role to play in helping the general public and especially the next generations understand and relate to the issues, make lifestyle changes to reduce greenhouse gas emissions and adapt to the changing local conditions. While CCESD at all levels and in both formal and non-formal settings is needed, instilling climate change awareness and understanding at a young age is ultimately the best way to change behaviours and attitudes. To ensure relevance and uptake, CCESD should be oriented according to the local context and prioritize passing traditional knowledge and practices to learners.

Climate Change Sustainable Education (CCSE)

The focus on environmental education has its origins in the National Education Policy of 1986. It was mandated by the Supreme Court of India and is overseen by the National Council of Educational Research. Environmental Education, which includes Climate Change and Sustainability Education (CCSE), is part of the professional development for teachers offered through a distance learning program developed through the Centre for Environmental Education. The National Council for Teacher Education has also developed an environmental education manual for student teachers. Thanks to all this, environmental protection is a common feature on the basis of which the National Curriculum Framework is created. India's recently revised National Education Policy 2020 mentions climate change and environmental issues as part of its work towards achieving the Sustainable Development Goals (SDGs). These 17 goals, endorsed by the United Nations (UN) in 2015, have 169 targets to be achieved by 2030. The goals of particular interest in this article include issues related to: promoting decent and sustainable work for all; ensuring the sustainability of settlements with appropriate model of production and consumption; and the conservation and sustainable use of marine and terrestrial resources. Education in India has been conceived as a way to raise awareness of climate change and its impacts in line with the Sustainable Development Goals and thus develop educated and engaged green citizens. These citizens are situated in the context of sustainable development, where social justice, improved quality of life, aspirations for a better life, opportunities, democracy, participation, inclusion, health and positive social change are embedded. In this sense, sustainability, environmental justice and social good are linked. More broadly, concerns about the role of the eco-citizen in sustainability and climate change education are growing because of the challenges of personal reflection on self, relating to others and the environment, and caring for place.

Climate Change Education for Sustainable Development core programme – Objectives

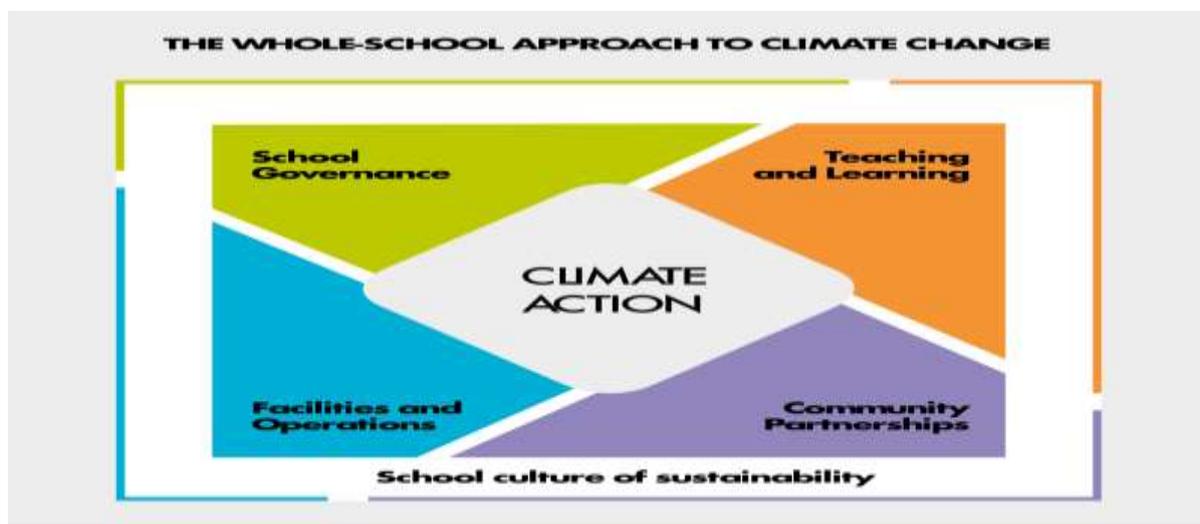
1. Strengthen the capacity of Member States to provide quality climate change education for sustainable development at primary and secondary school level through:

- improved education policy, analysis, research and planning
- teacher education and training of education planners
- training on curriculum review/reform.

2. Encourage and enhance innovative teaching approaches to integrate quality climate change education for sustainable development in school through

- interdisciplinary practices
- science education
- whole school approaches
- technical and vocational education and training (TVET)
- education on disaster risk reduction.

3. Raise awareness about climate change and enhance non-formal education programs through media, networking and partnerships.



Climate change is already causing significant damage to physical and biological systems. Students examine ice core data as well as other physical datasets to understand the implications of climate change on the physical world. Similarly, students look at datasets of biological systems and think about the adaptations humans need to adapt to a changing climate. A student may still have doubts about the reality of climate change and the scientific consensus process that lets us know that climate change is unequivocal and that there is overwhelming evidence that human activities are the main cause. The lesson provides an opportunity for students to step back from the data and think about the process of science and how we use language. Climate change requires global action and local solutions. The final lesson on climate change mitigation provides students with an opportunity to explore and choose mitigation strategies to reduce carbon dioxide emissions.

UNESCO 2023 State of the Education Report for India

The United Nations Education, Scientific and Cultural Organization (UNESCO) New Delhi Regional Office launched the fifth edition of its annual flagship report, Seeds of Change

- UNESCO 2023 State of the Education Report for India on Education to address Climate Change.

This year's report delves into the role of education in tackling the increasingly complex and intensifying challenges posed by climate change. India, like many parts of the world, continues to bear witness to the dire consequences of climate change through climate disasters and biodiversity losses. Education's full potential to shape a generation that understands the gravity of this urgent issue and equip them with the tools to combat it must be realized now.

National Policy on Education 2020

"The National Education Policy 2020 underscores the importance of making environmental education an integral part of school curricula at all stages. In order to address climate change in India, the Ministry of Education strongly believes in the role that education can play in resolving impacts of climate change. This report by UNESCO is very timely as it comes at a time when India is making significant strides in working on

the issue of climate change.”

“Education is a transformational tool in our fight against climate change – when we know better, we can do better. Educational systems must adapt to equip younger generations with the knowledge, skills and competencies to prepare them for the impacts of climate change.

This year’s UNESCO State of the Education Report for India is dedicated to the pivotal role of education in addressing climate change. We can see from the research that India has already taken some significant steps in this direction, and in doing so, is helping to promote sustainable and long-term solutions to this global challenge.” (Director, UNESCO New Delhi Regional Office)

“The National Council of Educational Research and Training’s (NCERT) commitment to addressing climate change through school education aligns seamlessly with the vision of the National Education Policy (NEP) 2020. The NCERT is delighted to know that the UNESCO New Delhi Regional Office has developed this report on the pivotal theme of education to address climate change and I trust this report will be an informative guide for programs directed towards climate change education.” (Director, NCERT)

In 2023, India ranked eighth out of 59 countries and the European Union (together accounting for 92% of global greenhouse gas emissions) in terms of climate performance according to the Climate Change Performance Index, up two places from the previous year. The new national curriculum framework revised in 2023 mentions climate change 52 times. Today, India is a country fit to explore innovation in climate education, and the UNESCO report highlights its best practices and future opportunities to achieve this.

UNESCO – has long supported the mobilization of cross-sector partnerships, political commitments and the empowerment of youth as key drivers for the full use of education in building a greener and more sustainable future. Its global Education for Sustainable Development (ESD) program contributes to this goal by laying the foundations for global collaboration and policy innovation. In addition, the Environmental Education Partnership (GEP), launched by the UN Secretary-General in 2022, provides a practical framework for education stakeholders to take further steps, and UNESCO serves as the Secretariat of the Environmental Education Partnership (GEP). By now, 80 Member States have joined the Partnership, for which UNESCO serves as the secretariat with strong commitment to green education systems, structured around four pillars of transformative education:

- Greening schools
- Greening curriculum
- Greening teacher training and education systems’ capacities
- Greening communities

The four pillars of the GEP are used as a guide by which the report analyses the state of Indian education to address climate change. The report is a synergy between UNESCO’s globally informed framework and local expertise cultivated by the research team from the Centre for Environmental Education in India, which authored the report.

We believe that the 10 specific recommendations contained in the conclusion of the report will help stakeholders in the education sector to take immediate action to strengthen the role of education in the fight against climate change. Furthermore, we believe that the recommendations would encourage actors in the environmental sector to include education more deeply in their policy activities. The ten recommendations are:

- Emphasize the urgent need for collective action to address climate change through education
- Include a climate change education component in all development policies
- Integrate climate change education at all stages of education
- Support educational institutions to be green and climate-ready
- Embed climate change perspectives into green skills and vocational education programmes
- Empower teachers with comprehensive climate change education training and resources
- Engage with the youth to build a green future
- Incorporate local and traditional knowledge that supports low-carbon lifestyles in climate change education
- Promote partnerships to foster innovations in climate change education
- Strengthen and create education-centred portals to provide reliable information on climate change

Strategies for Integrating Climate Change Education

To maximize the impact of education on environmental sustainability, it is essential to integrate climate change education into curricula at all levels. Here are some strategies:

1. Curriculum Development

Develop curricula that include comprehensive coverage of climate science, sustainability, and environmental ethics. This should be tailored to different education levels, from primary school to higher education.

2. Teacher Training

Provide teachers with the training and resources needed to effectively teach climate change and sustainability. This includes professional development opportunities and access to up-to-date educational materials.

3. Experiential Learning

Incorporate hands-on learning experiences such as field trips, community projects, and laboratory experiments. These activities help students connect theoretical knowledge with real-world applications.

4. Interdisciplinary Approach

Adopt an interdisciplinary approach that integrates climate change education across various subjects, including science, geography, economics, and social studies. This helps students understand the interconnectedness of environmental issues.

5. Community Engagement

Encourage partnerships between schools and local communities to address environmental challenges. Community projects can provide practical experience and foster a sense of responsibility.

Conclusion

Environmental sustainability is essential for a sustainable future, and education is a powerful tool in achieving this goal. By raising awareness, promoting sustainable practices, encouraging innovation, fostering critical thinking, and supporting policy advocacy, education can play a central role in addressing climate change. Integrating climate change education into curricula and adopting a holistic approach will equip future generations with the knowledge and skills needed to create a sustainable world.

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